ISSN (print) 0093-4666 © 2015. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/130.483

Volume 130, pp. 483–488 *April–June 2015*

Duportella lassa sp. nov. from Northeast Asia

Viacheslav Spirin [1*] & Jiří Kout [2]

[1]*Botanical Museum, P.O. Box 7, FI-00014 University of Helsinki, Finland*

[2]*Department of Biology, Geosciences and Environmental Education, University of West Bohemia, Klatovská 51, Plzeň, CZ-306 19, Czech Republic*

* Correspondence to: *viacheslav.spirin@helsinki.fi*

Abstract — *Duportella lassa* is described based on 15 collections from East Siberia and Russian Far East. The new species is characterized by its monomitic hyphal structure, brown-colored lamprocystidia, and habit on dead branches (both attached and recently fallen) of angiosperm trees and shrubs.

Key words — *Basidiomycota*, *Peniophora*, *Russulales*, taxonomy

Introduction

Duportella Pat. (*Russulales*, *Basidiomycota*) is a small genus of the so-called corticioid fungi currently including 13 species, mostly with tropical distribution (Andreasen & Hallenberg 2009, Hjortstam & Ryvarden 2004). Only two species of the genus, *D. halimi* (Boidin & Lanq.) Hjortstam and *D. malenconii* (Boidin & Lanq.) Hjortstam, have been reported from temperate or subtropical areas of the northern hemisphere (Boidin & Lanquetin 1974, 1977; Chamuris 1987; Duhem 1990). During the field trips in Khabarovsk Reg., Russian Far East, in 2011–14, the first author collected 14 specimens of an unknown *Duportella* species, and an older specimen from Siberia was found in mycological herbarium of Botanical Museum, University of Helsinki (H). It is described below as a new species, *D. lassa*.

Materials & methods

The specimens studied are kept in the herbaria of the Botanical Museum, University of Helsinki, Finland (H), and the Mycological Herbarium of the Department of Biology, Geosciences and Environmental Education, University of West Bohemia, Czech Republic (KBI). The microscopic routine followed Miettinen et al. (2006) and DNA analytical methods followed Spirin et al. (2013). Measurements were done in Cotton Blue using phase contrast illumination and oil immersion (with a subjective accuracy

of 0.1 µm; Miettinen et al. 2006). Abbreviations used in the species descriptions (and calculated for each specimen measured) include L – mean spore length; W – mean spore width; Q' – spore length/width ratio; Q – mean spore length/width ratio.

Taxonomy

Two specimens of *Duportella lassa* (Spirin 5498, 6129) were sequenced with very similar results, and we found no identical or essentially close sequences in GenBank. However, their ITS regions show up to 95% homology with some *Peniophora* species, thus displaying a vague generic status for *Duportella* versus *Peniophora* Cooke and supporting the same result shown in the complex molecular study of Boidin et al. (1998). Although more data are needed to resolve the phylogenetic relationships between the two taxa, for pragmatic reasons we here accept *Duportella* as an independent genus distinguishable by its brown-colored cystidia and hyphae and variably shaped basidiospores (versus *Peniophora* s. str.) as well as its lack of dendrohyphidia (versus *Dendrophora* (Parmasto) Chamuris); Andreasen & Hallenberg 2009).

Duportella lassa Spirin & Kout, **sp. nov.** PLATES 1–3

MYCOBANK MB 808096

D. halimii *similis, sed basidiosporis minoribus.*

TYPE: Russia, Khabarovsk Reg., Komsomol'sk Dist., Boktor, on fallen decorticated branch of *Quercus mongolica* Fisch. ex Ledeb., 18 Aug 2013, Spirin 6129 (**Holotype**, H; **isotype**, KBI; GenBank KJ509191).

ETYMOLOGY: *lassus* (Lat., adj.): exhausted, tired; referring to the rarely found spores in most collections of this species.

BASIDIOCARPS perennial, resupinate, covering 1–5(–10) cm, 0.05–0.15 mm thick, first soft and waxy, then rather tough. HYMENIAL SURFACE smooth, in juvenile basidiocarps bright ochraceous, continuous, in perennial specimens ochraceous-brown, cracking with small irregular fissures (rimose), sometimes with occasional low tubercles, in senescent withered basidiocarps fading to pale brown. Margin adherent, narrow, slightly paler than hymenial surface, in older basidiocarps indistinct. Subiculum indistinct.

HYPHAL STRUCTURE monomitic; hyphae with clamps. Subicular hyphae hyaline to brownish, thin- or slightly thick-walled, more or less parallel, some tortuous and short-celled, 3–5(–6) µm in diam., in older basidiocarps producing a distinct layer 15–20 µm thick. Subhymenial hyphae thin- to slightly thick-walled, first hyaline, then brownish, irregularly and rather densely arranged, tortuose, in subhymenium short-celled, mostly 3–4 µm in diam. LAMPROCYSTIDIA abundant, brownish to dark-brown, thick-walled, apically strongly encrusted, ampullaceous or bottle-shaped, sometimes bifurcate, in older specimens with 1–2 secondary septa in the middle part, 19–36 × 3–7 (–8) µm. GLOEOCYSTIDIA thin-walled or with thickened walls, bottle-shaped,

Plate 1. *Duportella lassa* (Spirin 7321), basidiocarp in situ.

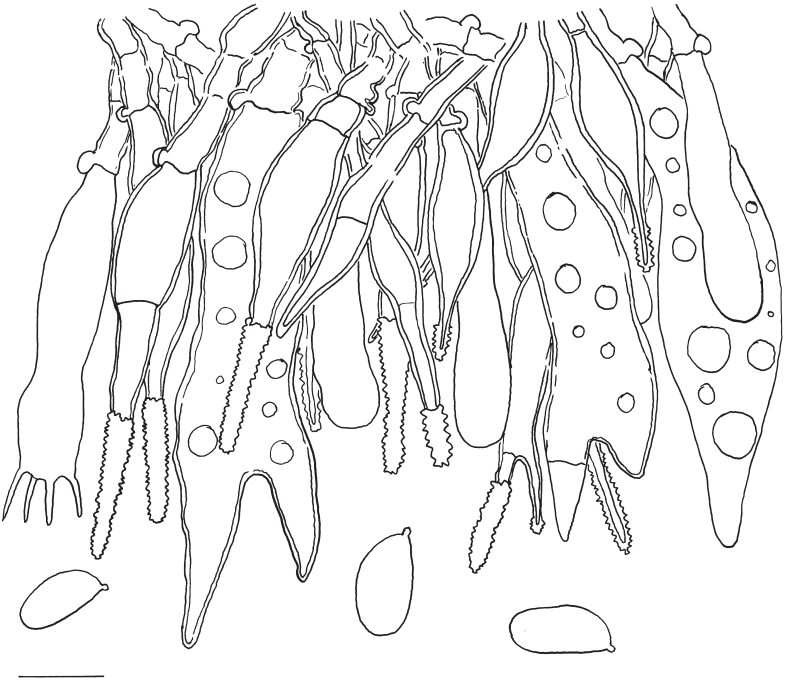

Plate 2. *Duportella lassa* (holotype), basidiocarp section. Bar = 5 µm.

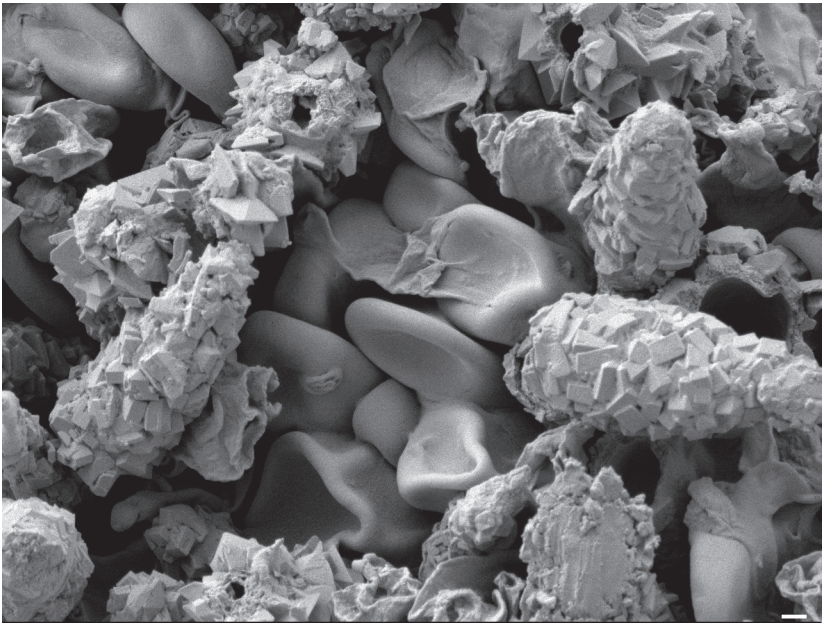

Plate 3. *Duportella lassa* (Spirin 5498), apically encrusted lamprocystidia (SEM). Bar = 1 μm.

conical or fusiform, some bifurcate, 23–50 × 6–10.5 μm; clavate, slightly thick-walled gloeocystidia common especially in senescent hymenium, 24–31.5 × 6.5–10.5 μm. Dendrohyphidia absent. Basidia suburniform, 4-spored, 17.5–26 × 5–6 μm, first hyaline and thin-walled, then basally thick-walled and brownish. Basidiospores first hyaline, later brownish (especially in older basidiocarps), smooth, thin-walled, thick cylindrical to narrowly ellipsoid or ovoid, (4.6–)4.8–6.8(–7.0) × (2.7–)2.8–4.1(–4.2) μm, L = 5.52, W = 3.32, Q' = (1.4–)1.5–2.1(–2.3), Q = 1.60–1.75 (n = 120/4), ventral side flat or slightly concave, rarely obscurely convex, inamyloid, indextrinoid, acyanophilous.

Ecology & distribution — *Duportella lassa* is so far the only boreal species known in the genus. The records derive mainly from montane old growth and secondary forests and willow thickets of East Siberia and the Russian Far East. The holotype specimen was collected from a fallen, decorticated branch of *Quercus mongolica,* but *D. lassa* occurs more commonly on dead but still attached branches of *Salix* spp.; a few records cite other angiosperm substrates (*Acer ukurunduense* Trautv. & C.A. Mey.*, Duschekia fruticosa* (Rupr.) Pouzar*, Populus tremula* L.*, Rhododendron dauricum* L.).

Additional specimens examined: ***Duportella lassa*** – **RUSSIA. Irkutsk Reg.: Slyudyanka Dist.**, Kultuk, on angiosperm, Sep 1902, Lönnbohm (Herb. P. Karsten 1514,

H). **Khabarovsk Reg.**: **Khabarovsk Dist.**, Ilga, *Salix abscondita* Laksch., 11 Aug 2012, Spirin 5173 (H), Ulika, *Populus tremula,* 13 Aug 2012, Spirin 5220 (H), Hologu, *Salix schwerinii* E.L. Wolf, 17 Aug 2012, Spirin 5340 (H, KBI), Malyi Kukachan, *S. schwerinii,* 20 Aug 2013, Spirin 5470 (H), Levyi Ulun, *Acer ukurunduense*, *Salix gracilistyla* Miq., 22 Aug 2012, Spirin 5486 (H, KBI), 5498 (H, KBI; GenBank KJ509190), *Rhododendron dauricum,* 24 Aug 2012, Spirin 5580 (H); **Solnechnyi Dist.**, Chalba, *Salix* sp., 9 Aug 2011, Spirin 4003 (H), Suluk-Makit, *Salix* sp., 19 Aug 2011, Spirin 4221 (H), Sonakh, *Quercus mongolica,* 15 Aug 2014, Spirin 7307, 7321 (H); **Verkhnebureinskii Dist.**, Dublikan Nat. Res., *Duschekia fruticosa,* 19 Aug 2014 Spirin 7570 (H), *S. schwerinii,* 23 Aug 2014, Spirin 7949 (H).

Duportella halimi – **FRANCE. Loire-Atlantique**: Le Portmain, St. Marie sur mer, *Atriplex halimus* L., 31 Aug 1971, Boidin (LY-JB 6635, holotype).

Duportella kuehneri – **ETHIOPIA. Shoa**: Chilomo, on branch, 10 Jan 1990, Ryvarden 28078 (H ex O).

Duportella malenconii* subsp. *americana Chamuris – **USA. California**: Contra Costa, Las Trampas Creek, on *Umbellularia californica* (Hook. & Arn.) Nutt., 27 Mar 1938, Bonar (H ex UC).

Duportella tristicula (Berk. & Broome) Reinking – **PAKISTAN.** Lahore, on dead branches, 27 Nov 1961, Ahmad (H ex GZM).

Peniophora isabellina – **USA. Virginia**: Woodstock, *Ribes* sp., 20 Sep 1899, Shear 1191 (FH 00290618, holotype).

Comments — *Duportella lassa* belongs with the minority of monomitic species in the genus. In this group, spore shape is the key character for species identification (Andreasen & Hallenberg 2009, Boidin et al. 1991). The seemingly most similar species, *D. halima* is distinguished by its broadly ellipsoid to ovoid and larger spores [(4.8–)5.1–6.9(–7.7) × (3.7–)3.8–5.1(–5.6) µm, L = 5.86, W = 4.38, Q' = (1.1–)1.2–1.4(–1.5), Q = 1.34 (n = 30/1)] and longer basidia and cystidia (see also Duhem 1990). Moreover, *D. halimi* is known thus far only from the coastal areas of France, where it inhabits dry branches and stems of *Atriplex halimus* (Boidin & Lanquetin 1974, Duhem 1990).

The spores in *Duportella kuehneri* (Boidin & Lanq.) Hjortstam are approximately the same shape and size as in *D. lassa*, but it is a dimitic species known from central Africa (Boidin & Lanquetin 1974).

The basidiocarps of *Duportella lassa* are usually sterile; only four specimens (holotype, Karsten 1514, Spirin 5340, 5498) have numerous spores. Nonetheless, it is easily recognizable even when non-fertile due to the ochraceous to brown rimose basidiocarps, abundant dark-colored lamprocystidia, and irregularly bifurcate gloeocystidia.

Peniophora isabellina Burt was described as possessing some characters (basidiocarp colours, spore size, short cystidia; Burt 1925) similar to *D. lassa*. Our study of the holotype (FH) revealed a very thin, pale ochraceous basidiocarp with a smooth (not rimose) hymenial surface. Its spores, while also very scarce, are bean-shaped (with concave ventral side) and ca. 5.3–6 × 2.8–3.1 µm, and its cystidia are carrot-shaped and encrusted with a hyaline crystalline material.

In our opinion, these features preclude a close affinity between *P. isabellina* and *D. lassa.*

Acknowledgments

We are very indebted to Dr. J. Vlasák (České Budějovice, Czech Republic) for DNA research work, J. Nebesářová and M. Mergl for the SEM photo, and curators of LY and FH herbaria for sending us the type specimens of *Duportella halimi* and *Peniophora isabellina*. This study was supported by the project EXLIZ – CZ.1.07/2.3.00/30.0013 (co-financed by the European Social Fund and the government of Czech Republic). The author VS is grateful to Dr. A. Ermoshkin (Khabarovsk, Russia) for arranging the field work in Boktor, where the holotype of *D. lassa* was collected. Eugene Yurchenko (Minsk, Belarus) and Heikki Kotiranta (Helsinki, Finland) kindly revised our manuscript.

Literature cited

Andreasen M, Hallenberg N. 2009. A taxonomic survey of the *Peniophoraceae*. Syn. Fungorum 26: 56–119.

Boidin J, Lanquetin P. 1974. *Peniophora* (sect. *Duportella*) *kuehneri* et *halimi* novae sp.; réflexions sur les genres *Peniophora* et *Duportella*. Bull. Mens. Soc. Linn. Lyon (special issue): 47–60.

Boidin J, Lanquetin P. 1977. *Peniophora* (sect. *Duportella*) *malençonii* [sic] nov. sp. (Basidiomycètes *Corticiaceae*), espèce méditerranéenne partiellement interstérile avec son vicariant californien. Revue Mycol., Paris 41: 119–128.

Boidin J, Lanquetin P, Gilles G. 1991. Les *Peniophoraceae* de la zone intertropicale (*Basidiomycetes*, *Aphyllophorales*). Bull. Soc. Mycol. France 107(3): 91–156.

Boidin J, Mugnier J, Canales R. 1998. Taxonomie moleculaire des *Aphyllophorales*. Mycotaxon 66: 445–491.

Burt EA. 1925. The *Thelephoraceae* of North America. 14. *Peniophora*. Ann. Missouri Bot. Gard. 12: 213–357.

Chamuris G. 1987. Notes on stereoid fungi 1. The genus *Dendrophora*, stat. nova, and *Peniophora malençonii* subsp. *americana*, subsp. nova ("*Stereum heterosporum*"). Mycotaxon 28: 543–552.

Duhem B. 1990. Études de cinq *Peniophora* récoltés sur l'île de Noirmoutier. Doc. Mycol. 20(78): 11–34.

Hjortstam K, Ryvarden L. 2004. Some new genera and species of corticioid fungi (*Basidiomycotina*, *Aphyllophorales*) from tropical areas. Syn. Fungorum 18: 20–32.

Miettinen O, Niemelä T, Spirin V. 2006. Northern *Antrodiella* species: the identity of *Antrodiella semisupina*, and type studies of related taxa. Mycotaxon 96: 211–239.

Spirin V, Vlasák J, Niemelä T, Miettinen O. 2013. What is *Antrodia* sensu stricto? Mycologia 105(6): 1555–1576. http://dx.doi.org/10.3852/13-039